## Amendments to the Claims

This listing of claims will replace all prior versions and listings of claims in the application:

### **Listing of Claims:**

1. (Currently amended) An isomer, enantiomer, diastereoisomer, or tautomer of a compound, represented by formula I:

$$R^{2} \xrightarrow{A} M^{1} M^{2} Z$$

$$R^{3} M^{4} \nearrow M^{3} \qquad (I)$$

wherein

---- represents either a single or a double bond;

**B** is -N- and **A** is  $=CR^{1}$ -; or

B is =C- and A is NR<sup>1</sup>;

is selected from the group consisting of: H, (C<sub>1-6</sub>)alkyl optionally substituted with: halogen, OR<sup>11</sup>, SR<sup>11</sup> or N(R<sup>12</sup>)<sub>2</sub>, wherein R<sup>11</sup> and each R<sup>12</sup> is independently H, (C<sub>1-6</sub>)alkyl, (C<sub>3-7</sub>)cycloalkyl, (C<sub>1-6</sub>)alkyl-aryl or (C<sub>1-6</sub>)alkyl-Het, said aryl or Het optionally substituted with R<sup>160</sup>;-or both R<sup>12</sup> are covalently bonded together and to the nitrogen to which they are both attached to form a 5, 6 or 7-membered saturated heterocycle;

the group -C(=Y1)-Z is covalently linked to either M2 or M3,

M<sup>1</sup> is CR<sup>4a</sup>,

 $M^2$  or  $M^3$ , when not linked to  $-C(=Y^1)-Z$ , is  $CR^5$ ,

M4 is CR4b,

Y<sup>1</sup> is O or S;

- Z is defined as NR<sup>N2</sup>-SO<sub>2</sub>-R<sup>C</sup> or NR<sup>N3</sup>-SO<sub>2</sub>-N(R<sup>N2</sup>)R<sup>N1</sup>, wherein R<sup>C</sup><u>or</u>, R<sup>N1</sup>-or any heterocycle formed by R<sup>N1</sup>-and R<sup>N2</sup> is optionally substituted with R<sup>60</sup>;
- R<sup>2</sup> is selected from: halogen or R<sup>21</sup>, wherein R<sup>21</sup> is aryl or **Het**, said R<sup>21</sup> is optionally substituted with R<sup>150</sup>;
- R³ is selected from (C<sub>1-6</sub>)alkyl, (C<sub>3-7</sub>)cycloalkyl, (C<sub>1-3</sub>)alkyl-(C<sub>3-7</sub>)cycloalkyl, (C<sub>5-7</sub>)cycloalkenyl, (C<sub>1-3</sub>)alkyl-(C<sub>5-7</sub>)cycloalkenyl, (C<sub>6-10</sub>)bicycloalkyl, (C<sub>1-3</sub>)alkyl-(C<sub>6-10</sub>)bicycloalkyl, (C<sub>6-10</sub>)bicycloalkyl, (C<sub>6-10</sub>)bicycloalkenyl, HCy or (C<sub>1-3</sub>)alkyl-HCy, wherein HCy is a saturated or unsaturated 4 to 75- or 6-membered heterocyclic group with 1 to 3-2 heteroatoms selected from O and, S and N; said alkyl, cycloalkyl, cycloalkenyl, bicycloalkyl, bicycloalkenyl, HCy and alkyl-HCy being optionally substituted with from 1 to 4 substituents selected from: a) halogen;
  - b) (C<sub>1-6</sub>)alkyl optionally substituted with:
    - 1 to 3 substituents selected from halogen;
    - $OR^{31}$  or  $SR^{31}$  wherein  $R^{31}$  is H,  $(C_{1-6})$ alkyl,  $(C_{3-7})$ cycloalkyl or  $(C_{1-6})$ alkyl- $(C_{3-7})$ cycloalkyl; or
    - N(R<sup>32</sup>)<sub>2</sub> wherein each R<sup>32</sup> is independently H, (C<sub>1-6</sub>)alkyl, (C<sub>3-7</sub>)cycloalkyl or (C<sub>1-3</sub>)alkyl-(C<sub>3-7</sub>)cycloalkyl<del>; or both R<sup>32</sup> are covalently bonded together and to the nitrogen to which they are attached to form a 5, 6 or 7-membered saturated heterocycle;</del>
  - c)  $OR^{33}$  or  $SR^{33}$  wherein  $R^{33}$  is H,  $(C_{1-6})$ alkyl,  $(C_{3-7})$ cycloalkyl or  $(C_{1-3})$ alkyl- $(C_{3-7})$ cycloalkyl;
  - d) N(R<sup>35</sup>)<sub>2</sub> wherein each R<sup>35</sup> is independently H, (C<sub>1-6</sub>)alkyl, (C<sub>3-7</sub>)cycloalkyl or (C<sub>1-3</sub>)alkyl-(C<sub>3-7</sub>)cycloalkyl<del>; or both R<sup>35</sup> are covalently bonded together and to the nitrogen to which they are attached to form a 5, 6 or 7-membered saturated heterocycle;</del>

R<sup>4a</sup>. R<sup>4b</sup>. R<sup>5</sup> each are independently H or defined as R<sup>150</sup>:

**R**<sup>60</sup> is defined as 1 to 4 substituents independently selected from:

- 1 to 3 substituents selected from halogen;
- one of each substituent selected from: OPO<sub>3</sub>H, NO<sub>2</sub>, cyano, azido, C(=NH)NH<sub>2</sub>,

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C(=NH)NH(C<sub>1-6</sub>)alkyl or C(=NH)NHCO(C<sub>1-6</sub>)alkyl, SO<sub>3</sub>H; and

- 1 to 3 substituents selected from:
- a) (C<sub>1-6</sub>) alkyl, (C<sub>3-7</sub>)cycloalkyl, (C<sub>3-7</sub>) spirocycloalkyl optionally containing 1 or 2 heteroatoms selected from N, O and S; (C<sub>2-6</sub>)alkenyl, (C<sub>2-8</sub>)alkynyl, (C<sub>1-6</sub>)alkyl-(C<sub>3-7</sub>)cycloalkyl, all of which optionally being substituted with R<sup>150</sup>;
- b) OR°;
- c)  $OC(O)R^{O}$ ;
- d)  $SR^{o}$ ,  $SO_{2}R^{c}$ ,  $SO_{2}N(R^{N2})R^{N1}$ ,  $SO_{2}N(R^{N2})C(O)R^{c}$ ,  $CONR^{N3}SO_{2}N(R^{N2})R^{N1}$ , or  $CONR^{N2}SO_{2}R^{c}$ :
- e)  $N(R^{N2})R^{N1}$ ,  $N(R^{N2})COOR^{C}$ ,  $N(R^{N2})SO_{2}R^{C}$  or  $N(R^{N1})OR^{O}$ ;
- f) N(R<sup>N2</sup>)COR<sup>C</sup>;
- g)  $N(R^{N3})CON(R^{N2})R^{N1}$ ;
- h)  $N(R^{N3})COCOR^{C}$ ,  $N(R^{N3})COCOOR^{O}$ ,  $N(R^{N3})COCON(R^{N2})OR^{O}$ , or  $N(R^{N3})COCON(R^{N2})R^{N1}$ ;
- i) COR°;
- j) COOR°;
- k)  $CON(R^{N2})R^{N1}$ ;
- aryl, Het, (C<sub>1-4</sub>)alkyl-aryl or (C<sub>1-4</sub>)alkyl-Het, all of which optionally being substituted with R<sup>150</sup>;

wherein said R<sup>N1</sup>, R<sup>C</sup> and/or R<sup>O</sup> are optionally substituted with R<sup>150</sup> as defined,

#### R<sup>150</sup> is defined as 1 to 4 substituents independently selected from:

- 1 to 3 substituents selected from halogen;
- one of each substituent selected from: OPO $_3$ H, NO $_2$ , cyano, azido, SO $_3$ H C(=NH)NH $_2$ , C(=NH)NH(C $_{1-6}$ )alkyl or C(=NH)NHCO(C $_{1-6}$ )alkyl; and
- 1 to 3 substituents selected from:
- a) (C<sub>1-6</sub>) alkyl, (C<sub>3-7</sub>)cycloalkyl, (C<sub>3-7</sub>)spirocycloalkyl optionally containing 1 or 2 heteroatoms selected from N<sub>7</sub> O and S; (C<sub>2-6</sub>)alkenyl, (C<sub>2-8</sub>)alkynyl, (C<sub>1-3</sub>) alkyl-(C<sub>3-7</sub>)cycloalkyl, all of which optionally substituted with R<sup>160</sup>;
- b) OR°;
- c) OC(O)R<sup>o</sup>;
- d)  $SR^0$ ,  $SO_2R^c$ ,  $SO_2N(R^{N2})R^{N1}$  or  $SO_2N(R^{N2})C(O)R^c$ ;
- e)  $N(R^{N2})R^{N1}$ ,  $N(R^{N2})COOR^{C}$ ,  $N(R^{N2})SO_{2}R^{C}$  or  $N(R^{N1})OR^{O}$ ;
- f)  $N(R^{N2})COR^{C}$ ;
- g)  $N(R^{N3})CON(R^{N2})R^{N1}$ ;
- h) N(R<sup>N3</sup>)COCOR<sup>c</sup>, N(R<sup>N3</sup>)COCOOR<sup>o</sup>, N(R<sup>N3</sup>)COCON(R<sup>N2</sup>)OH, N(R<sup>N3</sup>)COCON(R<sup>N2</sup>)O(C<sub>1-4</sub>)alkyl or N(R<sup>N3</sup>)COCON(R<sup>N2</sup>)R<sup>N1</sup>;

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- i) CORO;
- j) COORO;
- k) tetrazele, triazele, CONR<sup>N2</sup>SO₂R<sup>c</sup>, CONR<sup>N3</sup>-SO₂N(R<sup>N2</sup>)R<sup>N1</sup> or CON(R<sup>N2</sup>)R<sup>N1</sup>; wherein said R<sup>N1</sup>, R<sup>c</sup> and/or R<sup>o</sup> are optionally substituted with R<sup>160</sup> as defined;

R<sup>160</sup> is defined as 1, 2 or 3 substituents independently selected from:

- 1, 2 or 3 fluorine substituents; and
- one of each substituent selected from tetrazole, triazole, chlorine, bromine, iodine, CN, nitro,  $(C_{1-4})$ alkyl,  $OCF_3$ ,  $SCF_3$ ,  $CF_3$ ,  $COOR^{161}$ ,  $SO_3H$ ,  $SR^{161}$ ,  $SO_2R^{163}$ ,  $OR^{161}$ ,  $N(R^{162})_2$ ,  $SO_2N(R^{162})_2$ ,  $SO_2NR^{162}COR^{162}$ ,  $NR^{162}SO_2R^{163}$ ,  $-NR^{161}$ -CO-CO $(NR^{162})_2$ ,  $-CONR^{161}SO_2R^C$ ,  $CONR^{161}$ -SO $_2N(R^{162})_2$  or  $-SO_2$ -N $R^{161}$ -CO $R^C$ ,  $NR^{162}COR^{162}$  or  $CON(R^{162})_2$ , wherein  $R^{161}$ ,  $R^{163}$  and each  $R^{162}$  is independently ( $C_{1-4}$ )alkyl, ( $C_{3-7}$ )cycloalkyl or ( $C_{1-3}$ )alkyl-( $C_{3-7}$ )cycloalkyl; and  $R^{161}$  and each  $R^{162}$  may each independently also be H; or both  $R^{162}$ -are covalently bonded together and to the nitrogen to which they are attached to form a 5, 6 or 7-membered saturated heterocycle;
- $\mathbf{R}^{\mathbf{o}}$ ,  $\mathbf{R}^{\mathbf{c}}$  are independently defined as  $(C_{1-6})$ alkyl,  $(C_{3-7})$ cycloalkyl,  $(C_{1-4})$ alkyl- $(C_{3-7})$ cycloalkyl,  $(C_{2-6})$ alkenyl, aryl,  $\mathbf{Het}$ ,  $(C_{1-4})$ alkyl-aryl, or  $(C_{1-4})$ alkyl- $\mathbf{Het}$ ; or  $\mathbf{R}^{\mathbf{o}}$  is also optionally defined as H.
- $R^{N1}$  is H,  $(C_{1-6})$ alkyl,  $(C_{3-7})$ cycloalkyl,  $(C_{1-4})$ alkyl- $(C_{3-7})$ cycloalkyl,  $(C_{2-6})$ alkenyl, aryl,  $R^{N1}$  is H,  $(C_{1-6})$ alkyl-aryl,  $(C_{1-4})$ alkyl-Het; and
- $R^{N2}$ ,  $R^{N3}$ ,  $R^{N4}$  are independently H,  $CH_3$ ,  $(C_{2-6})$ alkyl,  $(C_{3-6})$ cycloalkyl,  $(C_{1-4})$ alkyl- $(C_{3-6})$ cycloalkyl; all of which being optionally substituted with halogen, carboxy or  $(C_{1-6})$ alkoxycarbonyl; and/or wherein said alkyl, cycloalkyl or alkylcycloalkyl is optionally substituted with hydroxy,  $(C_{1-6})$ alkyl,  $(C_{1-6})$ alkoxy, amino, -NH $(C_{1-4})$ alkyl and/or -N( $(C_{1-4})$ alkyl)<sub>2</sub>;-or

in the case

a) of a group N(R<sup>N2</sup>)R<sup>N1</sup> the substituents R<sup>N2</sup> and R<sup>N1</sup>; or
b) of a group NR<sup>N3</sup>-N(R<sup>N2</sup>)R<sup>N1</sup> the substituents R<sup>N3</sup> and R<sup>N1</sup>, or R<sup>N2</sup> and R<sup>N1</sup>;
may be covalently bonded together to form a 4-, 5-, 6- or 7-membered saturated or
unsaturated N-containing heterocycle or a 8-, 9-, 10- or 11-membered N-containing
heterobicycle, each optionally having additionally from 1 to 3-heteroatoms selected
from O, N, and S;

wherein **Het** is defined as a 4-, 5-<u>or</u>, 6<u>--or 7-membered heterocycle having 1 <u>or 2 to 4</u> heteroatoms selected from O, N and S, or a 8-, 9-, 10- or 11-membered heterobicycle having 1 to 5 heteroatoms selected from O, N and S;</u>

or a salt thereof.

- 2. (Currently amended) The compound according to claim 1, wherein
- ---- represents either a single or a double bond;

B is -N- and A is CR1 or =N-; or

**B** is = $\mathbb{C}$ - and **A** is O, S or NR<sup>1</sup>;

is selected from the group consisting of: H, (C<sub>1-6</sub>)alkyl optionally substituted with: halogen, OR<sup>11</sup>, SR<sup>11</sup> or N(R<sup>12</sup>)<sub>2</sub>, wherein R<sup>11</sup> and each R<sup>12</sup> is independently H, (C<sub>1-6</sub>)alkyl, (C<sub>3-7</sub>)cycloalkyl, (C<sub>1-6</sub>)alkyl-aryl or (C<sub>1-6</sub>)alkyl-Het, said aryl or Het optionally substituted with R<sup>160</sup>;-or both R<sup>12</sup>-are covalently bonded together and to the nitrogen to which they are both attached to form a 5, 6 or 7-membered saturated heterocycle;

the group -C(=Y1)-Z is covalently linked to either M2 or M3,

M<sup>1</sup> is CR<sup>4a</sup>, one of M<sup>2</sup> and M<sup>3</sup> is CR<sup>5</sup>, M<sup>4</sup> is CR<sup>4b</sup>.

and in addition one or two of the groups selected from  $M^1$ ,  $M^2$ ,  $M^3$  and  $M^4$  may also be N, with the proviso that the group  $M^2$  or  $M^3$  to which  $-C(=Y^1)-Z$  is linked is an C-atom,

Y<sup>1</sup> is O or S;

Z is defined as  $NR^{N2}$ - $SO_2$ - $R^C$ , wherein  $R^C$  is optionally substituted with  $R^{60}$ ;

 $\mathbf{R^2}$  is selected from: halogen or  $\mathbf{R^{21}}$ , wherein  $\mathbf{R^{21}}$  is anyl or  $\mathbf{Het}$ , said  $\mathbf{R^{21}}$  is optionally

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substituted with R150:

R³ is selected from (C<sub>1-6</sub>)alkyl, (C<sub>3-7</sub>)cycloalkyl, (C<sub>1-3</sub>)alkyl-(C<sub>3-7</sub>)cycloalkyl, (C<sub>5-7</sub>)cycloalkenyl, (C<sub>1-3</sub>)alkyl-(C<sub>5-7</sub>)cycloalkenyl, (C<sub>6-10</sub>)bicycloalkyl, (C<sub>1-3</sub>)alkyl-(C<sub>6-10</sub>)bicycloalkyl, (C<sub>6-10</sub>)bicycloalkenyl, (C<sub>1-3</sub>)alkyl-HCy, wherein HCy is a saturated or unsaturated 4 to 75- or 6-membered heterocyclic group with 1 to 3-2 heteroatoms selected from O and, S-and-N; said alkyl, cycloalkyl, cycloalkenyl, bicycloalkyl, bicycloalkenyl, HCy and alkyl-HCy being optionally substituted with from 1 to 4 substituents selected from: a) halogen;

- b) (C<sub>1-6</sub>)alkyl optionally substituted with:
  - $OR^{31}$  or  $SR^{31}$  wherein  $R^{31}$  is H, (C<sub>1-6</sub>alkyl), (C<sub>3-7</sub>)cycloalkyl or (C<sub>1</sub>. <sub>3</sub>)alkyl-(C<sub>3-7</sub>)cycloalkyl; or
  - N(R<sup>32</sup>)<sub>2</sub> wherein each R<sup>32</sup> is independently H, (C<sub>1-6</sub>)alkyl, (C<sub>3-7</sub>)cycloalkyl or (C<sub>1-3</sub>)alkyl-(C<sub>3-7</sub>)cycloalkyl; or both R<sup>32</sup> are covalently bonded together and to the nitrogen to which they are attached to form a 5, 6 or 7-membered saturated heterocycle;
- c)  $OR^{33}$  or  $SR^{33}$  wherein  $R^{33}$  is H,  $(C_{1-6})$ alkyl,  $(C_{3-7})$ cycloalkyl or  $(C_{1-3})$ alkyl- $(C_{3-7})$ cycloalkyl;
- d)  $N(R^{35})_2$  wherein each  $R^{35}$  is independently H,  $(C_{1-6})$ alkyl,  $(C_{3-7})$ cycloalkyl or  $(C_{1-3})$ alkyl- $(C_{3-7})$ cycloalkyl; or both  $R^{35}$  are covalently bonded together and to the nitrogen to which they are attached to form a 5, 6 or 7 membered saturated heterocycle;

R<sup>4a</sup>, R<sup>4b</sup>, R<sup>5</sup> each are independently H or defined as R<sup>150</sup>;

R<sup>60</sup> is defined as 1 to 4 substituents independently selected from:

- 1 to 3 substituents selected from halogen;
- one of each substituent selected from: OPO<sub>3</sub>H, NO<sub>2</sub>, cyano, azido, C(=NH)NH<sub>2</sub>, C(=NH)NH(C<sub>1-6</sub>)alkyl or C(=NH)NHCO(C<sub>1-6</sub>)alkyl, SO<sub>3</sub>H; and
- 1 to 3 substituents selected from:
- a) (C<sub>1-6</sub>) alkyl, (C<sub>3-7</sub>)cycloalkyl, C<sub>3-7</sub> spirocycloalkyl optionally containing 1 or 2 heteroatom selected from N<sub>7</sub>-O and S; (C<sub>2-6</sub>)alkenyl, (C<sub>2-8</sub>)alkynyl, (C<sub>1-6</sub>)alkyl-(C<sub>3-7</sub>)cycloalkyl, all of which optionally being substituted with R<sup>150</sup>;
- b) OR°;
- c)  $OC(O)R^{o}$ ;
- d)  $SR^{O}$ ,  $SO_{2}R^{C}$ ,  $SO_{2}N(R^{N2})R^{N1}$ ,  $SO_{2}N(R^{N2})C(O)R^{C}$  or  $CONR^{N2}SO_{2}R^{C}$ ;
- e)  $N(R^{N2})R^{N1}$ ,  $N(R^{N2})COOR^{C}$  or  $N(R^{N2})SO_{2}R^{C}$ ;

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- f)  $N(R^{N2})COR^{C}$ ;
- g)  $N(R^{N3})CON(R^{N2})R^{N1}$ ;
- h) N(RN3)COCORC, N(RN3)COCOORO or N(RN3)COCON(RN2)RN1;
- i) COR°;
- j) COOR°;
- k)  $CON(R^{N2})R^{N1}$ ;
- I) aryl, **Het**, (C<sub>1-4</sub>alkyl)aryl or (C<sub>1-4</sub>alkyl)**Het**, all of which optionally being substituted with **R**<sup>150</sup>:

wherein said R<sup>N1</sup>, R<sup>C</sup> and/or R<sup>O</sup> are optionally substituted with R<sup>150</sup> as defined,

R<sup>150</sup> is defined as 1 to 4 substituents independently selected from:

- 1 to 3 substituents selected from halogen;
- one of each substituent selected from: OPO $_3$ H, NO $_2$ , cyano, azido, C(=NH)NH $_2$ , C(=NH)NH(C $_{1-6}$ )alkyl or C(=NH)NHCO(C $_{1-6}$ )alkyl; and
- 1 to 3 substituents selected from:
- a) (C<sub>1-6</sub>) alkyl, (C<sub>3-7</sub>)cycloalkyl, C<sub>3-7</sub> spirocycloalkyl optionally containing 1 or 2 heteroatoms selected from N, O and S; (C<sub>2-6</sub>)alkenyl, (C<sub>2-8</sub>)alkynyl, (C<sub>1-3</sub>) alkyl-(C<sub>3-7</sub>)cycloalkyl, all of which optionally substituted with R<sup>160</sup>;
- b) OR°;
- c)  $OC(O)R^{O}$ ;
- d)  $SR^{O}$ ,  $SO_{2}R^{C}$ ,  $SO_{2}N(R^{N2})R^{N1}$  or  $SO_{2}N(R^{N2})C(O)R^{C}$ ;
- e)  $N(R^{N2})R^{N1}$ ,  $N(R^{N2})COOR^{C}$  or  $N(R^{N2})SO_{2}R^{C}$ ;
- f)  $N(R^{N2})COR^{C}$ :
- g)  $N(R^{N3})CON(R^{N2})R^{N1}$ ;
- h) N(R<sup>N3</sup>)COCOR<sup>c</sup>, N(R<sup>N3</sup>)COCOOR<sup>o</sup> or N(R<sup>N3</sup>)COCON(R<sup>N2</sup>)R<sup>N1</sup>; wherein R<sup>N1</sup> is as defined or OH, OAlkyl;
- i) CORO;
- i) COOR°:
- k) tetrazole or CON(R<sup>N2</sup>)R<sup>N1</sup>;

wherein said R<sup>N1</sup>, R<sup>C</sup> and/or R<sup>O</sup> are optionally substituted with R<sup>160</sup> as defined;

R<sup>160</sup> is defined as 1, 2 or 3 substituents independently selected from:

- 1, 2 or 3 fluorine substituents; and
- one of each substituent selected from tetrazole, chlorine, bromine, iodine, CN, nitro,  $C_{1-4}$ alkyl,  $CF_3$ ,  $COOR^{161}$ ,  $SO_3H$ ,  $SR^{161}$ ,  $SO_2R^{163}$ ,  $OR^{161}$ ,  $N(R^{162})_2$ ,  $SO_2N(R^{162})_2$ ,  $SO_2NR^{162}COR^{162}$ ,  $NR^{162}SO_2R^{163}$ ,  $NR^{162}COR^{162}$  or  $CON(R^{162})_2$ , wherein  $R^{161}$ ,  $R^{163}$  and each  $R^{162}$  is independently  $(C_{1-4})$ alkyl,  $(C_{3-7})$ cycloalkyl or  $(C_{1-3})$ alkyl- $(C_{3-7})$ cycloalkyl;

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and R<sup>161</sup> and each R<sup>162</sup> may each independently also be H<del>; or both R<sup>162</sup> are covalently bonded together and to the nitrogen to which they are attached to form a 5, 6 or 7 membered saturated heterocycle;</del>

- $R^{o}$ ,  $R^{c}$  are independently defined as  $(C_{1-6})$ alkyl,  $(C_{3-6})$ cycloalkyl,  $(C_{1-4})$ alkyl- $(C_{3-6})$ cycloalkyl,  $(C_{1-4})$ alkyl-Het;
- $R^{N1}$  is H, (C<sub>1-6</sub>)alkyl, (C<sub>3-7</sub>)cycloalkyl, (C<sub>1-4</sub>)alkyl-(C<sub>3-6</sub>)cycloalkyl, (C<sub>2-6</sub>)alkenyl, aryl, Het, (C<sub>1-4</sub>)alkyl-aryl, (C<sub>1-4</sub>)alkyl-Het; or
- R<sup>N2</sup>, R<sup>N3</sup>, R<sup>N4</sup> are independently H, CH<sub>3</sub>, (C<sub>2-6</sub>alkyl), (C<sub>3-6</sub>)cycloalkyl, (C<sub>1-4</sub>)alkyl-(C<sub>3-6</sub>)cycloalkyl; all of which being optionally substituted with halogen, carboxy or C<sub>1-6</sub>-alkoxycarbonyl; and/or wherein said alkyl, cycloalkyl or alkylcycloalkyl is optionally substituted with hydroxy, C<sub>1-6</sub>-alkyl, C<sub>1-6</sub>-alkoxy, amino, -NH(C<sub>1-4</sub>-alkyl) and/or -N(C<sub>1-4</sub>-alkyl)<sub>2</sub>; and

in the case

a) of a group N(R<sup>N2</sup>)R<sup>N1</sup> the substituents R<sup>N2</sup> and R<sup>N1</sup>; or
b) of a group NR<sup>N3</sup> N(R<sup>N2</sup>)R<sup>N1</sup> the substituents R<sup>N3</sup> and R<sup>N1</sup>, or R<sup>N2</sup> and R<sup>N1</sup>;
may be covalently bonded together to form a 4-, 5-, 6- or 7-membered saturated or
unsaturated N-containing heterocycle or a 8-, 9-, 10- or 11-membered N-containing
heterobicycle each may have additionally from 1 to 3 heteroatoms selected from O;
N, and S, wherein said heterocycle or heterobicycle is optionally substituted as
defined;

wherein **Het** is defined as a 4-, 5-, or 6-or 7-membered heterocycle having 1 or 2 to 4 heteroatoms selected from O<sub>7</sub> N-and S, or a 8-, 9-, 10- or 11-membered heterobicycle having 1 to 5 heteroatoms selected from O, N and S;

or a salt thereof.

3. (Previously presented) The compound according to claim 1 selected from formulas I.1 and I.2

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wherein R<sup>1</sup>, R<sup>2</sup>, R<sup>3</sup>, Y<sup>1</sup>, Z, M<sup>1</sup>, M<sup>2</sup>, M<sup>3</sup> and M<sup>4</sup> are defined as in claim 1.

- 4. (Original) The compound according to claim 1, wherein  $\mathbb{R}^1$  is selected from the group consisting of: H and  $(C_{1-6})$ alkyl.
- 5. (Original) The compound according to claim 4, wherein  $R^1$  is H,  $C\dot{H}_3$ , ethyl, or isobutyl.
- 6. (Original) The compound according to claim 5, wherein R<sup>1</sup> is H or CH<sub>3</sub>.
- 7. (Original) The compound according to claim 6, wherein R<sup>1</sup> is CH<sub>3</sub>.
- 8. (Original) The compound according to claim 1, wherein  $Y^1$  is O.
- 9. (OriginalCurrently amended) The compound according to claim 1, wherein **Z** is NR<sup>N3</sup>-SO<sub>2</sub>-N(R<sup>N2</sup>)R<sup>N1</sup>, wherein R<sup>N1</sup>-or any heterocycle formed by R<sup>N1</sup> and R<sup>N2</sup> is optionally substituted with R<sup>60</sup>, and wherein R<sup>N3</sup>, R<sup>N2</sup>, R<sup>N1</sup> and R<sup>60</sup> are defined as in claim 1.
- 10. (Original) The compound according to claim 1, wherein Z is  $NR^{N2}$ -SO<sub>2</sub>- $R^{C}$ ,

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wherein  $R^c$  is optionally substituted with  $R^{60}$ , and wherein Het,  $R^{N2}$ ,  $R^c$  and  $R^{60}$  are defined as in claim 1.

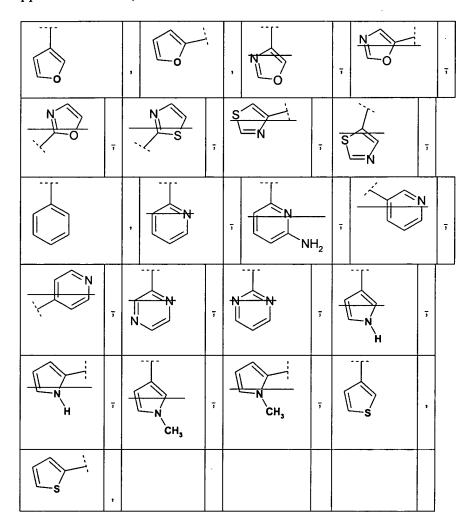
- 11. (Original) The compound according to claim 10, wherein **Z** is NH-SO<sub>2</sub>-**R**<sup>c</sup>, wherein **R**<sup>c</sup> is selected from the group consisting of (C<sub>1-6</sub>)alkyl, (C<sub>3-6</sub>)cycloalkyl, (C<sub>1-3</sub>)alkyl-(C<sub>3-6</sub>)cycloalkyl, (C<sub>2-6</sub>)alkenyl, phenyl, naphthyl, **Het**, (C<sub>1-3</sub>)alkyl-phenyl, (C<sub>1-3</sub>)alkyl-naphthyl, (C<sub>1-3</sub>)alkyl-**Het**, wherein said alkyl, cycloalkyl, alkyl-cycloalkyl, alkenyl, phenyl, naphthyl, **Het**, alkyl-phenyl, alkyl-naphthyl, or alkyl-**Het**, are all optionally substituted with 1 to 4 substituents selected from **R**<sup>60</sup>, wherein **R**<sup>60</sup> and **Het** are defined as in claim 10.
- 12. (Currently amended) The compound according to claim 11, wherein Z is NH-SO<sub>2</sub>-R<sup>c</sup>, wherein

R<sup>c</sup> is selected from the group consisting of methyl, ethyl, n-propyl, i-propyl, cyclopropyl, cyclobutyl, cyclopentyl, cyclopropylmethyl, cyclobutylmethyl, cyclopentylmethyl, pyrrolidine, piperidine, morpholine, thiomorpholine, piperazine, phenyl, naphthyl, benzyl, thiophene and, furan, pyrrole, imidazole, pyrazole, oxazole, isoxazole, thiazole, pyridazine, pyrimidine, pyrazine, diazepine, azepine, quinoline, isoquinoline, benzofuran, benzothiophene, benzothiazole, purine, pteridine,

<del>2,1,3-</del> <del>benzothiadiazole</del>	N, S	<del>, and</del>	
lmidazo[2,1- B][1,3]thiazole	N S	<del>,</del>	

all of which are optionally substituted with 1 to 3 substituents selected from  $R^{60}$ , wherein  $R^{60}$  is defined as in claim 11.

13. (Currently amended) The compound according to claim 1, wherein R<sup>2</sup> is R<sup>21</sup>, wherein R<sup>21</sup> is phenyl or **Het** selected from the group of formulas



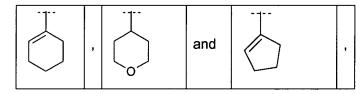
and wherein said  $R^{21}$  is unsubstituted or substituted with  $R^{150}$ , being defined as in claim 1.

- 14. (Currently amended) The compound according to claim 1, wherein R<sup>2</sup> is R<sup>21</sup>, wherein R<sup>21</sup> is defined as in claim 1, and wherein R<sup>21</sup> is optionally substituted with 1, 2 or 3 substituents selected from:
  - 1 to 3 substituents selected from halogen;
  - one of each substituent selected from: NO2, cyano, azido; and
  - 1 to 2 substituents selected from:
  - a)  $(C_{1-4})$ alkyl or  $(C_{1-4})$ alkoxy, both optionally substituted with OH,  $O(C_{1-4})$ alkyl,  $SO_2(C_{1-4})$ alkyl), 1 to 3 halogen atoms, amino,  $NH(C_{1-4})$ alkyl) or  $N((C_{1-4})$ alkyl)<sub>2</sub>;
  - b) NR<sup>111</sup>R<sup>112</sup> wherein both R<sup>111</sup> and R<sup>112</sup> are independently H, (C<sub>1-4</sub>)alkyl, or R<sup>112</sup> is (C<sub>3-7</sub>)cycloalkyl, (C<sub>1-3</sub>)alkyl(C<sub>3-7</sub>)cycloalkyl, phenyl, benzyl;-or both R<sup>111</sup> and R<sup>112</sup> are covalently bonded together and to the nitrogen to which they are

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attached to form <u>5membered a O or S nitrogen containing heterocycle</u>, each of said alkyl, cycloalkyl, alkylcycloalkyl, phenyl and benzyl, being optionally substituted with halogen or:

- $OR^{2h}$  or  $N(R^{2h})_2$ , wherein each  $R^{2h}$  is independently  $H\underline{or}_7$  ( $C_{1-4}$ )alkyl $_7$  or both  $R^{2h}$ -are covalently bonded together and to the nitrogen to which they are attached to form a nitrogen containing heterocycle;
- c) NHCOR<sup>117</sup> wherein  $R^{117}$  is  $(C_{1-4})$ alkyl,  $O(C_{1-4})$ alkyl or  $O(C_{3-7})$ cycloalkyl; and
- e)  $CONH_2$ ,  $CONH(C_{1-4})$ alkyl),  $CON((C_{1-4})$ alkyl)<sub>2</sub>.
- 15. (Original) The compound according to claim 1, wherein  $\mathbb{R}^3$  is selected from  $(C_{3-7})$ cycloalkyl,  $(C_{5-7})$ cycloalkenyl,  $(C_{6-10})$ bicycloalkyl,  $(C_{6-10})$ bicycloalkenyl, or **Het**, wherein said groups are unsubstituted or mono- or disubstituted by halogen, cyano, nitro, hydroxy,  $(C_{1-4})$ alkyl and/or O- $(C_{1-4})$ alkyl, wherein the alkyl groups may be fluorinated.
- **16**. (Original) The compound according to claim 15, wherein **R**<sup>3</sup> is cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl or cycloheptyl, or a group selected from



wherein all said groups are unsubstituted or substituted by fluorine, (C<sub>1-3</sub>)alkyl or CF<sub>3</sub>.

- 17. (Original) The compound according to claim 16, wherein R³ is cyclopentyl or cyclohexyl.
- 18. (Original) The compound according to claim 1 wherein R<sup>4a</sup>, R<sup>4b</sup>, R<sup>5</sup> each are independently H, hydroxy, halogen, cyano, nitro, carboxyl, (C<sub>1-4</sub>)alkyl, CF<sub>3</sub>, (C<sub>1-4</sub>)alkoxy, -O-(C<sub>3-7</sub>)cycloalkyl, -O-(C<sub>1-3</sub>)alkyl-(C<sub>3-7</sub>)cycloalkyl, -O-aryl, -O-(C<sub>1-3</sub>)alkyl-aryl, -O-Het, -O-(C<sub>1-3</sub>)alkyl-Het, NR<sup>N1</sup>R<sup>N2</sup>, COR<sup>O</sup>, NR<sup>N2</sup>COR<sup>C</sup>, CONR<sup>N2</sup>R<sup>N1</sup>, or NR<sup>N3</sup>CONR<sup>N1</sup>R<sup>N2</sup>; wherein Het, R<sup>C</sup>, R<sup>O</sup>, R<sup>N1</sup>, R<sup>N2</sup>, R<sup>N3</sup> and R<sup>160</sup> are as defined in claim 1; and wherein all said alkyl groups, including alkoxy, may be mono-, di- or trisubstituted by fluorine or mono-substituted by chlorine or bromine.

- 19. (Original) The compound according to claim 18 wherein  $R^c$ ,  $R^o$  and  $R^{N1}$  are independently of each other H,  $(C_{1-4})$ alkyl, aryl,  $(C_{1-3})$ alkyl-aryl; wherein aryl is defined as phenyl optionally substituted with  $R^{160}$ , wherein  $R^{160}$  is defined as in claim 18; and wherein all said alkyl groups may be mono-, di- or trisubstituted by fluorine or monosubstituted by chlorine or bromine; and wherein  $R^{N2}$  and  $R^{N3}$  are independently H or methyl.
- 20. (Original) The compound according to claim 18 wherein R<sup>4a</sup>, R<sup>4b</sup>, R<sup>5</sup> each are independently H, hydroxy, halogen, cyano, nitro, methyl, CF<sub>3</sub>, methoxy, carboxy, amino, -NMe<sub>2</sub>, -CONH<sub>2</sub>, -NHCONH<sub>2</sub>, -CO-NHMe, -NHCONHMe, -CO-NMe<sub>2</sub> or -NHCONMe<sub>2</sub>.
- 21. (Original) The compound according to claim 20 wherein R<sup>4a</sup>, R<sup>4b</sup>, R<sup>5</sup> each are H, methyl or methoxy.
- 22. (Original) The compound according to claim 1 wherein R<sup>4a</sup> is H or methyl.
- 23. (Original) The compound according to claim 1 wherein at least two of the substituents selected from R<sup>4a</sup>, R<sup>4b</sup>, R<sup>5</sup> are H.
- 24. (Currently amended) The compound according to claim 1, wherein R<sup>60</sup> is each defined as 1 to 4 substituents independently selected from:
  - 1 to 3 substituents selected from halogen;
  - one of each substituent selected from: NO2, cyano, azido; and
  - 1 to 3 substituents selected from:
  - a) (C<sub>1-4</sub>) alkyl, (C<sub>3-7</sub>)cycloalkyl, (C<sub>2-4</sub>)alkenyl, (C<sub>2-4</sub>)alkynyl, (C<sub>1-3</sub>)alkyl-(C<sub>3-7</sub>)cycloalkyl, all of which optionally being substituted with  $\mathbf{R}^{150}$ ;
  - b) ORO;
  - e)  $N(R^{N2})R^{N1}$ ;
  - f)  $N(R^{N2})COR^{C}$ ;

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- j) COOR°;
- k)  $CON(R^{N2})R^{N1}$ ;
- I) phenyl, Het, (C<sub>1-3</sub>alkyl)phenyl or (C<sub>1-3</sub>alkyl)Het; wherein Het is selected from furan, tetrahydrofuran, thiophene, tetrahydrothiophene<u>and</u>, tetrahydropyran, pyridinyl, azetidine, pyrrolidine, piperidine, piperazine, morpholine, thiomorpholine, homopiperidine and homopiperazine, all of which optionally being substituted with R<sup>150</sup>;

wherein said R<sup>N1</sup>, R<sup>C</sup> and/or R<sup>O</sup> are optionally substituted with R<sup>150</sup> as defined, and R<sup>150</sup>, R<sup>N1</sup>, R<sup>N2</sup>, R<sup>C</sup> and R<sup>O</sup> are defined as in claim 1.

## 25. (Original) The compound according to claim 1, wherein

R<sup>150</sup> is defined as 1 to 4 substituents independently selected from:

- 1 to 3 fluorine-substituents;
- one of each substituent selected from: chlorine, bromine, iodine, NO<sub>2</sub>, cyano, azido; and
- 1 to 3 substituents selected from:
- a) (C<sub>1-3</sub>) alkyl, CF<sub>3</sub>, (C<sub>3-6</sub>)cycloalkyl, (C<sub>1-3</sub>) alkyl-(C<sub>3-6</sub>)cycloalkyl, all of which optionally substituted with  $\mathbb{R}^{160}$ ;
- b) OR<sup>o</sup>;
- e)  $N(R^{N2})R^{N1}$ ;
- f)  $N(R^{N2})COR^{C}$ ;
- i) COOR°;
- k)  $CON(R^{N2})R^{N1}$ ;

wherein said  $R^{N1}$ ,  $R^{C}$  and/or  $R^{O}$  are optionally substituted with  $R^{160}$  as defined; and  $R^{160}$ ,  $R^{N1}$ ,  $R^{N2}$ ,  $R^{C}$  and  $R^{O}$  are defined as in claim 1.

# **26.** (Original) The compound according to claim 1, wherein

R<sup>160</sup> is defined as 1, 2 or 3 substituents independently selected from:

- 1, 2 or 3 fluorine substituents; and
- one of each substituent selected from chlorine, bromine, iodine, CN, nitro, methyl, trifluoromethyl, ethyl, n-propyl, i-propyl, COOH, COOCH<sub>3</sub>, OH, OCH<sub>3</sub>, OCF<sub>3</sub>, NH<sub>2</sub>, NHCH<sub>3</sub>, N(CH<sub>3</sub>)<sub>2</sub>, SO<sub>2</sub>NH<sub>2</sub>, SO<sub>2</sub>NHCOCH<sub>3</sub>, NHCOCH<sub>3</sub> or CONH<sub>2</sub>, CONHCH<sub>3</sub> and CON(CH<sub>3</sub>)<sub>2</sub>.

- 27. (Currently amended) The compound according to claim 1, wherein
  - R<sup>o</sup>, R<sup>c</sup> are independently defined as (C<sub>1-4</sub>)alkyl, (C<sub>3-6</sub>)cycloalkyl, (C<sub>1-3</sub>)alkyl-(C<sub>3-6</sub>)cycloalkyl, phenyl, benzyl, **Het**, (C<sub>1-3</sub>)alkyl-**Het**; all of which are optionally substituted as defined; and R<sup>o</sup> may also be H;
  - R<sup>N1</sup> is H, (C<sub>1-4</sub>)alkyl, (C<sub>3-6</sub>)cycloalkyl, (C<sub>1-3</sub>)alkyl-(C<sub>3-6</sub>)cycloalkyl, phenyl, benzyl, phenylethyl, **Het**, (C<sub>1-3</sub>)alkyl-Het; wherein said alkyl, cycloalkyl, alkyl-cycloalkyl, phenyl, benzyl, phenylethyl, **Het** and alkyl-**Het** are optionally substituted as defined; or
  - R<sup>N2</sup>, R<sup>N3</sup>, R<sup>N4</sup> are independently H, methyl, ethyl, n-propyl, i-propyl, cyclopropyl, cyclopropyl, cyclopropylmethyl; all of which being optionally substituted with fluorine, carboxy or methoxycarbonyl; and/or wherein said ethyl, n-propyl or i-propyl is optionally substituted with hydroxy, methyl, methoxy, amino, -NH(CH<sub>3</sub>) and/or -N(CH<sub>3</sub>)<sub>2</sub>;-and

in the case

a) of a group N(R<sup>N2</sup>)R<sup>N1</sup>-the substituents R<sup>N2</sup>-and R<sup>N1</sup>-or
b) of a group NR<sup>N3</sup>-N(R<sup>N2</sup>)R<sup>N1</sup>-the substituents R<sup>N3</sup>-and R<sup>N1</sup> or R<sup>N2</sup> and R<sup>N1</sup>
may be covalently bonded together to form a 5-, 6- or 7-membered saturated heterocycle which may have additionally one heteroatom selected from O, N, and S, wherein said heterocycle is optionally substituted as defined;

wherein Het is defined as in claim 1.

- 28. (Previously amended) A method of inhibiting HCV polymerase activity comprising contacting an HCV polymerase with a compound of the formula I according to claim 1, or a pharmaceutically acceptable salt thereof.
- 29. (Previously amended) A method of inhibiting the RNA dependent RNA polymerase activity of the enzyme NS5B, encoded by HCV, comprising contacting the enzyme NS5B, encoded by HCV, with a compound of the formula I according to claim 1, or a pharmaceutically acceptable salt thereof..

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- **30.** (Previously amended) A method of inhibiting the replication of the Hepatitis C virus comprising contacting the Hepatitis C virus with a compound of the formula I according to claim 1, or a pharmaceutically acceptable salt thereof.
- 31. (Original) A method of treating or preventing HCV infection in a mammal, comprising administering to the mammal an effective amount of a compound of formula I according to claim 1, or a pharmaceutically acceptable salt thereof.
- **32.** (Previously amended) A method of treating or preventing HCV infection in a mammal, comprising administering to the mammal an effective amount of a combination of a compound of formula I according to claim 1, or a pharmaceutically acceptable salt thereof, with another antiviral agent.
- **33.** (Original) A pharmaceutical composition for the treatment or prevention of HCV infection, comprising an effective amount of a compound of formula I according to claim 1, or a pharmaceutically acceptable salt thereof, and a pharmaceutically acceptable carrier.
- **34.** (Previously amended) The composition according to claim 33 further comprising a therapeutically effective amount of one or more other antiviral agents.
- **35.** (Original) The composition according to claim 34, wherein said antiviral agent is selected from: ribavirin and amantadine.
- **36.** (Original) The composition according to claim 34 wherein the antiviral agent is an other anti-HCV agent.
- **37**. (Previously amended) The pharmaceutical composition according to claim 36, wherein the other anti-HCV agent is an immunomodulatory agent.
- **38.** (Previously amended) A composition according to claim 36, wherein the other anti-HCV agent is another inhibitor of HCV polymerase.

- **39.** (Original) The composition according to claim 36, wherein the other anti-HCV agent is an inhibitor of HCV NS3 protease.
- **40.** (Original) The composition according to claim 36, wherein the other anti-HCV agent is an inhibitor of another target in the HCV life cycle.
- 41. (Original) A composition according to claim 40, wherein said inhibitor of another target in the HCV life cycle is an agent that inhibits a target selected from HCV helicase, HCV NS2/3 protease and HCV IRES.
- 42. (Cancelled)
- **43.** (Currently amended) A compound of the following formula:

$$R^2$$
 $R^3$ 

wherein A, B,  $R^2$ ,  $R^3$  and Z are as defined in the following table:

Cpd.#	Α	В	R²	R³	. Z
101	-N(CH₃)-	=C-	NH <sub>2</sub>	7	N-S
114	-N(CH₃)-	=C-			N-S

Cpd.#	Α	В	R²	R³	Z
115	-N(CH₃)-	=C-			N S S
<del>116</del>	- <del>N(CH₃)-</del>	<del>-C-</del>	N   N   N   N   N   N   N   N   N   N		H
117	- <del>N(CH₃)-</del>	=C-	N N N N N N N N N N N N N N N N N N N		N-S
118	=C(CH <sub>3</sub> )-	-N-			NH S
119	=C(CH₃)-	-N-			O O N S CH <sub>3</sub>
123	- <del>N(CH₃)-</del>	= <b>C</b> -		<u></u>	N S CH <sub>3</sub>
124	-NH-	=C-		J	NH NH
125	-NH-	=C-		5	O O O O O O O O O O O O O O O O O O O
126	<del>-N(CH₃)-</del>	<del>-C-</del>			

Cpd.#	Α	В	R²	R³	Z
<del>127</del>	= <del>C(CH<sub>3</sub>)-</del>	-N-	NH <sub>2</sub>		O O OMe N-S OMe
129	-N(CH₃)-	=C-		-	O S H

# **44.** (Previously added) A compound of the following formula:

wherein  $R^2$ ,  $R^3$ ,  $R^{4a}$ , p and Z are as defined in the following table, wherein p designates the C-atom on the benzene ring to which the group C(=O)-Z is bonded:

Cpd. #	R²	R³	R <sup>4a</sup>	р	Z
201			-OCH₃	2	O O O O O O O O O O O O O O O O O O O
202			-OCH₃	2	N S
203			-H	3	O O O O O O O O O O O O O O O O O O O

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Cpd. #	R²	R³	R <sup>4a</sup>	р	Z
204			-H	3	HZ NH NH NH NH NH NH NH NH NH NH NH NH NH